

petitors are maligned; but the profession has, and can have, no security for the competency or faithfulness of a self-appointed and irresponsible tribunal.

Secondly, apart from the reasons implied above, I conceive that competitions have a very degrading influence on professional men, as they are generally games of hazard played with clogged dice or marked cards; where no tricks of this kind are adopted they are simple lotteries. History has recorded many instances of the marvellous infatuation induced by gambling of every kind; how lotteries or commercial manias influence all classes and descriptions of men to engage in speculations of the wildest kinds for the chance of success, where the odds are greatly against the deluded victims of eager avarice. In a similar way do I account for the support yielded to competitions by so many of the profession; for I have never yet met with a person out of the profession who did not wonder at the fatuous folly of architects in expending so much money, time, and labour on such precarious probabilities. Yet do we find this absurd practice of competition pervading all ranks of the profession, from the hoary gambler, who has grown grey in the career, to the artful pupil, confident in the unexhausted resources of his virgin genius; for I have heard of the master and his pupil engaging in the same competition.

"But surely," it will be said, "the practice of design thus gained is useful, to the younger architects especially?" Only, I believe, to a very limited extent: no doubt, considerable facility is acquired for designing *exteriors*, and in all the artifices for securing false or exaggerated effects in drawing; but the detail of ornament, perfection of arrangement, interior effects, and constructive excellence,—these are virtues which cannot be attained by the mere public competitor: their value is too occult to be worthy of parade in a show design; and, consequently, in his occasional successes, the competitor by profession frequently commits most egregious blunders. Even Elmes, with all his talent and refined taste, in designing a music hall (the St. George's Hall in Liverpool) has omitted to provide a situation for the orchestra; and now, wherever it is placed, that important feature must necessarily have an intrusive appearance, and injure some of his most studied effects, instead of being a valuable accessory, as it might have been made. Let me ask, was there ever a building erected from competition-drawings which was not remarkable for some extraordinary omission in the accommodation, or for some serious excess in the cost? I believe not, and think that such a result is accounted for by the supposition that day-dreaming and reverie weakens the intellect, and incapacitate it for grappling the practical details of every-day life, so the practice of merely general design is analogous to castle building, and prevents its victims from doing justice to their conceptions whenever the opportunity is afforded for carrying them into execution. A much more masculine and vigorous character of mind would be cultivated if young architects would be content to continue sequestered some few years longer;—if they would extend the range of their experience by devoting more time to study, and less in attempts to practise;—and if they would familiarise themselves with practical details, common-place though they appear, by acting as clerks of works on various buildings. Could the secret history of the profession be displayed, I fear it would exhibit a woful list of men with fair abilities wasting their energies on fruitless competitions,—wrecking their gay convoy of rich hopes on barren disappointment.

Thirdly, the eagerness with which architects rush into competitions tends to deprive the profession of respectful consideration from the public. If the usual scale of professional remuneration is excessive, let it be reduced; but if it is only fair and reasonable, can the public be expected to think so, when so many are willing to work for the mere chance of obtaining a gratuity much less than the charge each would be entitled to claim were he specially consulted? In what way is the support of architectural competitions to be

reconciled with the equality of the professional mind? This question I cannot answer; and so, for these and reasons frequently expressed by others, do I abstain from a custom which I consider is "more honoured in the breach than the observance," and I shall be happy to form another cipher after Mr. Oliver's unit in his anti-competition league.

JOSEPH BOULTON.

GUTTA PERCHA AND ITS "HALF-MARROW," INDIA-RUBBER.

THERE are two singular Proteuses,—brother and sister, shall we call them, of one species?—are ever assuming some new form or other of utility in the hands of those capable of turning their wondrous plastic capabilities to account. One interesting recent use to which gutta percha has been put may be seen in the department of "machines in motion" (an odd place for it), at the International Exhibition. Gutta percha stereotypes, with gutta percha matrices, may there be seen, as well as impressions of the stereotypes, printed on paper in the usual printers' ink. The whole process, we should think, might be gone through in a few minutes, by help of some artificial cooling agency, or within an hour even without it. The matrix is just taken by pressure from the block of types while the sheet of gutta percha is hot and soft, and a sharp and fine impression it is quite capable of taking. When cold and hard, this stereotyping plate of gutta percha is ready to have a like impression, or reverse of itself, taken also, by pressure of a second soft and moist sheet of gutta percha on it; and this, when cold and hard, is ready at once for the press plate or cylinder. The specimens of printing, from letters and engravings thus formed are as sharp as if taken in metal, and the flexible nature of the substance admits of its being curved round a cylinder, to adapt the surface more completely to the action of the cylinder printing machine. The gutta percha type is even stated to be very durable, and to possess the advantage of printing the impressions on dry and even on glazed paper. This novel application of gutta percha, if it realise the expectations of the inventor, promises to be an important addition to typographic art.

A recent experiment at the Regent's Canal shows that gutta percha may be made useful in submarine blasting, or other explosive operation, even at a "40 mile range,"—a pretty "long range" truly. A coil of wire, 40 miles in length, and completely coated with gutta percha, was laid under the water in the canal, at the rear of the works of the Gutta Percha Company in City-road. One end of this great length of wire being attached to a galvanic battery, the other was led into a gutta percha vessel filled with gunpowder, and sunk in the mud at the bottom of the canal. The instant the circuit was closed, the powder exploded, and the electric influence traversed the 40 miles without any perceptible lapse of time. This experiment, it is said, was performed in the presence of Lieut. Ward, R.A., who attended by order of Sir John Burgoyne, the Inspector General of Fortifications.

The probable utility of gutta percha in warfare is curiously enhanced by the fact, by the way, that some of the continental military (the French, if we recollect right) are actually said to have got ball-proof gutta percha breastlets—waistcoats—or whatever they may be called, from which balls drop off like mere hailstones! so that ultimately the honest cobbler's idea that for the defence of town walls against cannon balls, "there was nothing like lining them with leather," may at least be realised some day in gutta percha.

In mining, too, as well as in warfare, its use is daily increasing, as the experiment just noticed may itself show. Buckets for descent and ascent in mines are also made of gutta percha, and we observe that a gutta percha tube has lately been placed in a colliery in Wales, having a shaft 400 feet deep, whereby a whisper, either from the bottom or top, is said to be instantly heard: a whistle calls attention, and then follows the message. A great source of mischief may be thus abolished by a safe and expeditious mode of communication.

There is one abuse of gutta percha which we must not omit to notice, namely, the use of gutta-percha clubs by a set of ferocious scoundrels at Sheffield, who called themselves, with satanic humour and devilry, the "Gutta-Percha Club." Some of the members of this reputable club were introduced to the police magistrates on certain occasions in connection with the irregular transfer of property; but we do not know whether they be still at Sheffield, or whether they did not much more probably go in due time to Van Deman's Land to witness the eclipse of their "gutta-percha club."

We have enumerated but a few of the uses, not already noted in our columns, to which gutta percha has been more or less recently put; and although the varied uses of this substance itself are limited by its limited quantity, we do not despair of the production of something like it from substances more abundant in quantity. Indeed, what we some time since noted as an alleged discovery in America, of a method of dissolving and remoulding leather itself, supports us in this idea; and so does another fact that we now recollect of, namely that chemists have found bitumen under certain circumstances to yield a substance very like caoutchouc. A word this to the wise of a wide-awake generation: and now, we will not be surprised, in consequence of it, soon to be able to announce the artificial and abundant production of a cheap and good substitute for either gutta percha or india-rubber, or both.*

Manifest as are the uses of India-rubber too, as well as of gutta percha, we rather think that gutta percha has, of late, been taking the lead; but no harlequin and pantaloons ever followed in the wake of each other more diligently in magical transformations than do these two no less supple associates in transformations of a more useful and not less astonishingly varied and protean order. The last new transmutations of India-rubber we happen to have heard of besides the bat-wings for human use to be elsewhere noted in our columns, are those quoted in the following extract from the *Westminster Review*:—

"India-rubber and gutta percha seem destined to make a revolution in the world. Strange, how little the savages have done with them. For the elastic bow of yew an elastic string of vulcanized India-rubber is now substituted, and drives an arrow with equal force and precision. A man may now carry his bow in his fob. . . . And thus—[by the vulcanizing process] a stretched-out compressed pipe of India-rubber will yield a bowstring of any power that may be required. Another inventor has made a compound application of this principle. The rebound of the elastic cord is made to compress air in a tube by sudden action; and the air throws a bullet with considerable force. There is another advantage attending this arrangement: a man can pull with a force of about 60lbs. weight. If each elastic cord be equal to 60lbs., and he attaches twenty strings and puts them on tension at twenty efforts, he will have a force of 1,200lbs. to discharge at one effort. This principle is now applied to harpoon guns with advantage, whales being exceedingly sensitive to noise, as when powder is used."

So that India-rubber is not behind hand in offensive weapons for warfare, if gutta percha, in breastlets, or in lining fortification-walls, be a head in those for defence.

BUSTS OF RIGNY AND CODRINGTON.—A celebrated sculptor of Paris, it is said, has received orders from the Greek Government for marble busts of Admirals de Rigny and Codrington.

* Nature, says the *Athenaeum*, in a hopeful spirit like our own, as to "things to be found out," is not exhausted. Within her fertile bosom there may be thousands of substances yet unknown as precious as the only recently found gutta percha. To doubt this, would be to repudiate the most logical inference afforded by the whole history of the earth. Corn and grapes excepted, nearly all our staples in vegetable food are of comparatively modern discovery. Society had a long existence without tea, coffee, cocoa, sugar, and potatoes. Who shall say there is not a more nutritious plant than the sugar-cane, a finer root than the potato, a more useful tree than the cotton? Barred wealth lies everywhere in the bowels of the earth, which needs but the true divining rod of organized action for its discovery.